

IN THE CLAIMS

Kindly amend claims to read as follows.

1. (currently amended): A method of sizing paper or paper board by applying a composition (A) to at least one of,

- i) the surface of a formed paper or paper board sheet,
- ii) a paper or paper board making cellulosic suspension prior to draining,

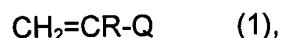
wherein the composition (A) comprises an aqueous dispersion of polymeric particles of particle size up to 1 micron, wherein the polymeric particles comprise a water insoluble polymer matrix, comprised of ethylenically unsaturated monomer or ethylenically unsaturated monomer blend, wherein an oligomer formed from a monomer blend comprising,

- (a) 85-95 mole % (meth)acrylamide,
- (b) 2.5-10 mole % of an organic mercaptan or organic sulphone, and
- (c) 2.5-10 mole % of an ethylenically unsaturated monomer comprising either a tertiary amine group or a quaternary ammonium group
- (d) 2.5-10 mole% other ethylenically unsaturated monomers

is located at the surface of the polymer particles.

2. (previously presented): A method according to claim 1 wherein component (b) is selected from the group consisting of C₈₋₂₀ alkyl mercaptans, C₅₋₇ cycloalkyl mercaptans, aromatic mercaptans, C₈₋₂₀ alkyl sulphones, C₅₋₇ cycloalkyl mercaptans and aromatic sulphones.

3. (previously presented): A method according to claim 1 wherein component (c) comprises a compound of formula (1)



wherein

Q is -C(O)-Z-A-, -CH₂-N⁺R₁R₃CH₂CR=CH₂ X⁻ or -CH₂NR₁CH₂CR=CH₂,

Z is -O- or -NH-,

A is $-C_nH_{2n}B-$,

n is an integer from 1 to 4,

B is $-NR_1R_2$ or $-N^+R_1R_2R_3 X^-$,

R is -H or -CH₃,

R₁ is C₁₋₄ alkyl,

R₂ is C₁₋₄ alkyl ,

R₃ is -H or C₁₋₈ alkyl, C₅₋₇ cycloalkyl or benzyl, and

X⁻ is an anion.

4. (previously presented): A method according to claim 1 wherein component (c) is dimethylaminoethyl (meth)acrylate, acid addition salt or quaternary ammonium salt thereof.

5. (previously presented): A method according to claim 1 wherein the oligomer comprises at least 85 mole % of component (a).

6-7. (cancelled).

8. (previously presented): A method according to claim 1 wherein the oligomer further comprises component (d) which is an ethylenically unsaturated carboxylic acid or an ethylenically unsaturated carboxylic anhydride in an amount up to 10 mole %.

9. (original): A method according to claim 8 wherein component (d) is acrylic acid or maleic anhydride and is present in an amount between 2.5 and 5 mole %.

10. (previously presented): A method according to claim 1 wherein the matrix of the polymeric particles are formed from a monomer or a monomer blend comprising monomers selected from the group consisting of styrene, C₁₋₁₂ alkyl (meth)acrylate, vinyl acetate and acrylonitrile.

11. (currently amended): A method according to claim 1 wherein the matrix of the polymer particles is formed from 25-75 weight % of a monomer or monomer blend selected from any the group consisting of styrene, acrylonitrile, vinyl acetate and C₁₋₂ alkyl (meth)acrylates, and 25-75 weight % of a monomer or monomer blend selected from C₃₋₈ alkyl (meth)acrylates.

12. (currently amended): A method according to claim 1 wherein the matrix of the polymer particles is formed from 25-75 weight % styrene and 25-75 weight % 2-ethylhexyl acrylate.

13. (currently amended): A method according to claim 1 wherein the polymer particles are formed from a monomer blend comprising a cross linking monomer.

14. (previously presented): A method according to claim 1 wherein the polymer particles have a minimum film forming temperature of between -5 and 55°C.

15. (previously presented): A method according to claim 1 wherein the polymer particles have a particle size in the range 80-200nm.

16. (currently amended): A method according to claim 1 wherein the composition (A) comprises 0.5 to 10 weight % polymer particles and 90 to 99.5 weight %, starch based on total dry weight of polymer particles and starch.

17. (currently amended): A method of improving printability of a sheet of paper by applying to the surface of the formed paper sheet a composition comprising an oligomer formed from a monomer blend comprising,

- (a) 85-95 mole % (meth)acrylamide,
- (b) 2.5-10 mole % of an organic mercaptan or organic sulphone,
- (c) 2.5-10 mole % of an ethylenically unsaturated monomer comprising either a tertiary amine group or a quaternary ammonium group, and optionally
- (d) 2.5-10 mole% other ethylenically unsaturated monomers.

18. (previously presented): A method according to claim 17 wherein the composition comprises an aqueous dispersion of polymeric particles of particle size up to 1 micron, wherein the polymeric

particles comprise a water insoluble polymer matrix, and the oligomer is located at the surface of the polymer particles.

19. (previously presented): A method according to claim 17 wherein the oligomer is formed from a monomer blend comprising,

- (a) 85-95 mole % (meth)acrylamide,
- (b) 2.5-10 mole % of an organic mercaptan or an organic sulphone,
- (c) 2.5-10 mole % of an ethylenically unsaturated monomer comprising either a tertiary amine group or a quaternary ammonium group, and
- (d) 2.5-5 mole% other ethylenically unsaturated monomers.

20. (currently amended): A method according to claim 17 wherein the composition comprises 0.5 to 10 weight % polymer particles and 90 to 99.5 weight %- starch based on total dry weight of polymer particles and starch.

21. (previously presented): A method according to claim 17 wherein the composition comprises optical brightening aids.

22. (currently amended): A composition comprising an aqueous dispersion of polymeric particles of particle size up to 1 micron, wherein the polymeric particles comprise a water insoluble polymer matrix, characterized in that an oligomer formed from a monomer blend comprising,

- (a) 85-95 mole % (meth)acrylamide and
- (b) 2.5-10 mole % of an organic mercaptan or an organic sulphone, and
- (c) 2.5-10 mole % of an ethylenically unsaturated monomer comprising either a tertiary amine group or a quaternary ammonium group, and
- (d) 2.5 0-10 mole% other ethylenically unsaturated monomers,

is located at the surface of the polymer particles.

23. (original): A composition according to claim 22, wherein the polymeric particles have a particle size of 80-200 nm.

24. (previously presented): A composition according to claim 22, wherein component (b) is dodecyl mercaptan or dodecyl sulphone, present in an amount of 2.5-5 mole % based on total oligomer.

25. (previously presented): A composition according to claim 22, wherein component (c) is dimethylaminoethyl methacrylate, present in an amount of 2.5-5 mole % based on total oligomer.

26. (previously presented): A composition according to claim 22, wherein component (d) is acrylic acid or maleic anhydride, present in an amount of 2.5-5 mole % based on total oligomer.